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ABSTRACT

0034 A high-K gate dielectric stack for a MOSFET gate structure to reduce Voltage threshold ( $V_{th}$ ) shifts and method for forming the same, the method including providing a high-K gate dielectric layer over a semiconductor substrate; forming a buffer dielectric layer on the high-K gate dielectric including a dopant selected from the group consisting of a metal, a semiconductor, and nitrogen;; forming a gate electrode layer on the buffer dielectric layer; and, lithographically patterning the gate electrode layer and etching to form a gate structure.